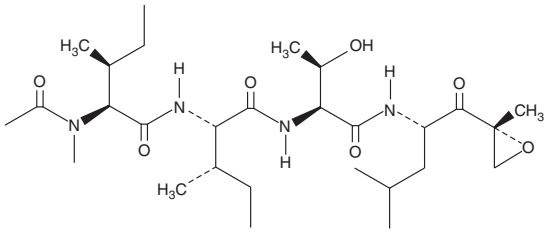
Product Information

Epoxomicin

Item No. 10007806

CAS Registry No.: 134381-21-8
Formal Name: N-acetyl-N-methyl-L-isoleucyl-L-isoleucyl-N-[(1S)-3-methyl-1-[[(2R)-2-methyloxiranyl]carbonyl]butyl]-L-threoninamide
Synonym: BU 4061T
MF: $C_{28}H_{50}N_4O_7$
FW: 554.7
Purity: ≥98%
Stability: ≥1 year at -20°C
Supplied as: A solution in DMSO



Laboratory Procedures

For long term storage, we suggest that epoxomicin be stored as supplied at -20°C. It should be stable for at least one year.

If aqueous stock solutions are required for biological experiments, they can best be prepared by diluting the organic solvent into aqueous buffers or isotonic saline. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Epoxomicin is a potent anti-tumor agent isolated from *Actinomycetes* that is used as a selective and irreversible inhibitor of the 20S proteasome. It inhibits proteasome activity in cell growth assays with an IC_{50} value of 4 nM and demonstrates potent cytotoxicity against B16-F10, HCT116, and Moser solid tumor cells, as well as P388 and K562 leukemia cells with IC_{50} values ranging from 2-44 nM.[1,2] By inhibiting osteoblast proteasome activity, epoxomicin stimulates bone formation at concentrations as low as 10 nM.[3] Intraperitoneal injection of 1.5 mg/kg epoxomicin given daily for two weeks induces Parkinson's-like symptoms in rats and addition of 100 nM epoxomicin to rat ventral midbrain cultures results in apoptosis specific to dopaminergic neurons.[4,5] Epoxomicin-induced parkinsonism can be a useful model to examine mechanisms and therapies for the disease.

References

1. Kim, K.B., Myung, J., Sin, N., *et al.* Proteasome inhibition by the natural products epoxomicin and dihydroeponemycin: Insights into specificity and potency. *Bioorg. Medicinal Chem. Letters* **9**, 3335-3340 (1999).
2. Hanada, M., Sugawara, K., Kaneta, K., *et al.* Epoxomicin, a new antitumor agent of microbial origin. *J. Antibiotics* **45(11)**, 1746-1752 (1992).
3. Garrett, I.R., Chen, D., Gutierrez, G., *et al.* Selective inhibitors of the osteoblast proteasome stimulate bone formation *in vivo* and *in vitro*. *J. Clin. Invest.* **111(11)**, 1771-1782 (2003).
4. McNaught, K.St.M., Perl, D.P., Brownell, A.-L., *et al.* Systemic exposure to proteasome inhibitors causes a progressive model of Parkinson's disease. *Ann. Neurol.* **56**, 149-162 (2004).
5. Rideout, H.J., Lang-Rollin, I.C.J., Savalle, M., *et al.* Dopaminergic neurons in rat ventral midbrain cultures undergo selective apoptosis and form inclusions, but do not up-regulate iHSP70, following proteasomal inhibition. *J. Neurochem.* **93**, 1304-1313 (2005).

Related Products

IU1 - Item No. 10617 • Lactacystin - Item No. 70980 • Clasto-Lactacystin β-lactone - Item No. 70988 • Salinosporamide A - Item No. 10007311 • Salinosporamide B - Item No. 10007563

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